APPENDIX 6a
EPI Proposal/Contract
Third party independent Inspections post-remediation on HAZMAT

PROPOSAL

Evaluation of ex-USS Kittiwake (ASR-13) for the Presence of PCB's

EPI Proposal No. 2007080801-R5

Prepared for:
Ms. Nancy Easterbrook
Kittiwake Project Manager
Cayman Islands Tourism Association
Cayman Islands, BWI

18 January 2008

Prepared by:

EPI
813 Frederick Road
Baltimore, Maryland 21044
(410) 744-0700
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18 January 2008

Ms. Nancy Easterbrook
Kittiwake Project Manager
Cayman Islands Tourism Association
P.O. Box 31086 SMB
73 Lawrence Boulevard, Islander Complex
Grand Cayman, Cayman Islands, BWI

Re: Evaluation of the ex-USS Kittiwake (ASR-13) for the Presence of PCB's
EPI Proposal No. 2007080801-R5

Dear Ms. Easterbrook:

Pursuant to your request, EPI is pleased to provide this proposal to perform a post-remedial evaluation for the presence of PCB's aboard the referenced vessel. We understand that the evaluation will be performed subsequent to the remediation of shipboard locations where PCB's have either been identified or presumed in concentrations greater than 50 parts per million. We also understand that remediation activities will be performed and managed by other entities, and that such entities have demonstrated prior experience in performing remediation similar in size and scope to that anticipated aboard the ex-USS Kittiwake.

Background

Paint

Paint samples were collected in 2006 from 121 locations aboard the vessel and analyzed for PCB content. Laboratory analysis revealed that only one of the 121 paint samples contained PCB's in excess of 50 parts per million (ppm). This sample, #67, was located in Main Propulsion, lower STBD side, location B-204-E, Fr. 79. Subsequent sampling performed in the vicinity of #67 in 2007 also indicated PCB concentrations in excess of 50 ppm.

The Cayman Islands Tourism Association (CITA) has provided to the US Maritime Administration (MARAD) a plan to remediate the area on and adjacent to the surfaces where sample #67 in 2006 and subsequent samples in 2007 were obtained.

Suspected PCB Items and Articles

A complete visual inspection of the vessel will be performed to ascertain the presence of suspect PCB articles or materials, including but not limited to electrical components as per the list of such materials in the National Guidance; Best management Practices for Preparing Vessels Intended to Create Artificial Reefs (BMP Guidance) May 2006 (found at 71 FR 27716).

Purpose

The purpose of the work described in this proposal shall be:

- To perform post-remediation sampling for the presence of PCB's on and around the location of sample #67 and use the results of laboratory analysis to determine whether the remediation was successful.

- To obtain samples from coated surfaces at locations throughout the vessel for additional verification that such surfaces or surface coatings do not contain PCB's at concentrations greater than or equal to 50 ppm.

- Visually inspect the entire vessel to ascertain the presence of suspect PCB articles or materials.

SCOPE OF SERVICES

We propose to complete the third party evaluation as described above by means of five components; 1) document review, 2) sampling protocol development, 3) on-site inspection and sample collection, and 4) preparation of report of findings, and 5) final visual inspection. The details of each component are as follows:

Component 1: Document Review

Available documentation will be reviewed to determine the history of the vessel with respect to this reefing project. Documentation may include ship's plans, the PCB sampling plan, PCB inspection reports, PCB remediation plans, and PCB remediation reports.

Component 2: Sampling Protocol Development[1]

Based on the document review, an inspection strategy and sampling protocol will be developed for evaluating the effectiveness of vessel-wide PCB remediation. The protocol will specify information including but not limited to:

- The process for selecting the number of samples, sample locations, and, sample dimensions and sample size (if applicable),
- The process for selecting alternate sample locations,
- A diagram of proposed sampling locations,
- Decontamination process for re-usable sampling equipment,
- Waste and trash handling procedures,
- Field QA/QC procedures, including duplicates, splits, and blanks,
- The approved analytical method, and
- The criteria for classifying a sample result as a negative finding.

We understand that the sampling protocol may require review and/or approval by Government agencies, and that such review may be performed beyond the control of the CITA.

[1] This portion of the work has been completed. A copy of the sampling plan has been included as Attachment 1 to this proposal.

Component 3: Post Remediation Vessel Inspection and Sample Collection

Subsequent to vessel-wide PCB remediation, EPI will visually inspect the vessel and obtain bulk samples from painted surfaces throughout, as described in the Sampling Protocol (see Component 2 above). Particular emphasis will be placed on sampling for the presence of PCB's at and around the location of paint sample #67, which was previously identified as containing greater than 50 ppm PCB.

The exact number of samples to be collected from the vessel cannot be sufficiently determined at this time. However based on information presently available, we anticipate that approximately 120 - 130 sample locations will be utilized, and that at least six (6) bulk samples will be collected from around the identified PCB "hot spot" located in the machinery space. The bulk samples will then be forwarded to an accredited laboratory for analysis of PCB content. Extraction, analytical, and cleanup methods will be delineated in the Sampling Protocol.

The fees associated with Step 3 are based on two full-day site visits to the project site by two inspectors. Estimated fees also include travel-related expenses for two visits to the project site. Cost estimates for Step 3 do not include laboratory fees associated with sample analysis.

Component 4: Final Visual Inspection

Following successful post-remedial testing (as described in Items 1 through 3) above, a final, third-party visual inspection of the vessel will be performed. The scope of this visual inspection shall be to ascertain the presence of suspect PCB articles or materials as per the BMP Guidance document. If they are found, suspect PCB articles or materials will be identified by type and location and then inventoried for review. A report will be prepared detailing the procedures and findings of the inspection, along with recommendations for the client's consideration.

Component 5: Preparation of Report

A report of findings will be prepared upon receipt of test results. The report will detail the purpose, methods, findings, and conclusions of the visual inspection and bulk sampling. Copies of the final report will be provided to the EPA OSW for their use.

ITEMS NOT INCLUDED

1. Fees for the laboratory analysis of wipe samples and/or bulk samples.
2. Analysis of materials other than paint samples for the presence of PCB's.
3. Travel expenses to locations other than the anticipated mooring site of the vessel (Dominion Marine Shipyard, 425 Campostella Road, Norfolk, Virginia).
4. In-depth evaluation of complex environmental issues that were not initially communicated to EPI or are discovered after initiating the evaluation could require a change to the scope of services. EPI will identify any such issues and present them to the client before conducting any additional work.

CHANGES TO SCOPE OF SERVICES

Any changes requested to the scope of services above will be subject to cost renegotiation.

FEES AND PAYMENTS

Components 1 and 2: Doc. Review and Protocol Development . $1,560.00 Fixed Price

Component 3*: Vessel Inspection + Travel .....$15,755.00 Estimated

Component 4: Final Visual Inspection.....$7,250.00 Estimated

Component 5: Preparation of Final Report.....$3,560.00 Estimated

Total of Items 1, through 5 .....$28,215.00 Estimated

* Estimated fees for Step 3 do not include the cost of analysis for PCB wipe/bulk samples. The estimated cost of analysis for PCB wipe/bulk samples is $125.00/sample.

Travel time will be billed at ½ of the quoted hourly rate. All reimbursables, including but not limited to such items as travel expenses, reproductions, messenger services, telefacsimiles, long distance telephone calls, and applicable sales taxes, will be billed at cost. Subcontracted work, though not anticipated, will be billed at cost plus 10%. This proposal is based on current salaries and operational costs. If work under this proposal is not completed within six months from the date of the proposal, EPI reserves the right to adjust the fees to reflect current costs.

Our invoice will be based on the work completed at the following hourly rates for employees working on the project:

Principal/Certified Industrial Hygienist/Safety Professional $245.00/hour
Project Supervisor/Certified Industrial Hygienist.....$195.00-$245.00/hour
Project Manager/Industrial Hygiene Technician..... $145.00/hour
HSE (Health, Safety, and Environmental) Associate.....$95.00-$105.00/hour
Graphic/Photograph/Video/Administrative Support.....$55.00-$65.00/hour
Document Management $60.00/hour

While CITA shall be responsible for payment of services to EPI, the services being provided by EPI are for the legislative bodies of the Kittiwake Project, namely the Cayman Islands Department of the Environment, the US EPA, and MARAD. We understand the role of the CITA is solely to facilitate ship visits, liaise with legislators, and to approve contracts or make payments for services rendered.

PROJECT SCHEDULE

While no project timeline has been established, we understand that the scheduling of our work may be influenced by factors beyond our control. Notwithstanding, we shall make every effort to comply with delivery dates established by the client. The final report for the vessel evaluation will be completed within two weeks of receipt of final laboratory analysis.

RECORD RETENTION

EPI has no responsibility to retain any files, drawings or documents in connection with this project after one year from completion of project. At that time, all files, drawings, and documents may be destroyed unless requested by the client or the client's representative.

REFERENCES

We invite you to contact the following individuals who can attest to our experience and qualifications:

Stuart Perry
U.S. Environmental Protection Agency
TSCA Coordinator, Region III
Atlanta, GA
(404) 562-8980

Carolyn E. Junemann, Ph.D.
U.S. Department of Transportation, Maritime Administration
400 Seventh St. SW, Room 7209
Washington, DC 20590
Phone: (202) 366-1920

Spencer Slate
Captain Slate's Atlantis Dive Center
51 Garden Cove Drive
Key Largo, FL 33037
Phone: (305) 451-3020

LIMITATION OF LIABILITY

EPI's maximum obligation and/or liability to client, except insofar as EPI may be liable for its own negligent acts or those of its employees, for all claims, actions, damages or expenses arising out of, or in any way related to the provision of services under this agreement (including, but not limited to, an alleged breach of this agreement or an alleged breach or warranty) shall not exceed the total compensation due EPI under this proposal.

SUMMARY

If this proposal is satisfactory, please sign in the space provided and return one copy to our office. The terms of this proposal shall be null and void if not accepted with 30 days, unless officially extended in writing.

Sincerely,

Marc J. Plisko, CIH
Project Manager

MJP/mjp

ACCEPTANCE

The proposal description of professional services and terms are satisfactory and are hereby accepted. Authorization to proceed with the work is granted.

Company: Cayman Islands Tourism Association
Name: NANCY EASTERBROOK
Title: PROJECT MANAGER
Signature: N Easterbrook
Date: March 30/2008

APPENDIX 6b
EPI PCB Paint Sampling Plan/Protocol

PCB SAMPLING PLAN

Evaluate PCB Remediation Aboard USS Kittiwake (ASR-13)

EPI Project No. 27458

Prepared for:
Ms. Nancy Easterbrook
Kittiwake Project Manager
Cayman Islands Tourism Association
Cayman Islands, BWI

18 January 2008

Prepared by:

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PCB Sampling Plan
for
Ex-USS Kittiwake (ASR-13)

Environmental Profiles, Inc. (EPI) has developed this sampling plan for the ex-USS Kittiwake. The plan addresses comments in a letter from Ms. Laura Johnson, US EPA, Ocean and Coastal Protection Division, Marine Pollution Control Branch, dated August 10, 2007, which was submitted to the Cayman Islands Tourism Association (CITA). The letter from Ms. Johnson was submitted to CITA in response to the PCB remediation plan sent by CITA to the US Maritime Administration on May 1, 2007.

The CITA remediation plan described the results of a 2006 PCB survey aboard the vessel, which identified an area in the machinery space (B-204-E) as having surface PCB concentrations in excess of 50 parts per million (ppm). The CITA, through its agent, Dominion Marine Group, Ltd, has proposed to remediate the contamination by cutting and removing from the vessel all metal and paint from the affected area.

This plan sets forth the procedures to be followed for vessel-wide post-remedial sampling conducted pursuant to the remediation of surface PCB contamination previously identified aboard the vessel.

1.0 The Purpose and Objectives of the Sampling.

1.1 Paint samples shall be collected and analyzed for the purpose of evaluating the effectiveness of PCB remediation performed aboard the vessel, with emphasis placed on the remedial efforts performed in compartment B-204-E of the ex-USS Kittiwake (ASR-13).

1.2 The evaluation will be performed by means of sample collection using industry-accepted sample strategies and approved sampling and analytical methods.

2.0 Type(s) of samples to be collected.

2.1 Individual bulk samples of surface paint will be collected.

2.2 None of the bulk samples will be composited.

2.3 The paint samples will be obtained such that all painted layers at a particular sample location will be included in each sample.

3.0 Sample collection to verify remediation related to compartment B-204-E.

3.1 The statistical sample strategy will be based on guidelines published by the US EPA, and **may include relevant portions** of the following:

a) Compliance with Toxic Substances Control Act (TSCA) PCB Disposal Regulations: Sampling and Analyzing Paint on Metal Surfaces of Vessels Being Scrapped for Metal Recovery

b) Verification of PCB Spill Cleanup by Sampling and Analysis (OTS-1985)

c) Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup (OTS-1986)

We understand the limitations associated with the preceding publications and acknowledge that they are not relevant or applicable to this project in their entirety. We intend to rely only on those portions that support the statistical methods presented in this outline.

3.2 The number of samples collected will be determined based on the size of the area remediated, with the locations laid out in a hexagonal grid and situated on the remaining surface adjacent to the edge of the removed surface(s).

3.3 The exact size of the area to be remediated has not been determined.

3.3.1 If the radius of the remediated area is less than 4-feet, then six paint samples will be taken (see Figure 1).

3.3.2 If the radius of the remediated area is greater than 4-feet but less than 10-feet, then 12 samples will be taken (see Figure 2).

3.3.3 While not anticipated, 18 samples will be taken if the remediated area is greater than 10-feet but less than 20-feet (see figure 3).

3.4 The sample dimensions will be 30 cm x 30 cm square, with the goal of obtaining a 50 gram sample; less mass may be obtained if deemed acceptable by the laboratory.

3.5 In the event a sample cannot be obtained from its proposed location, an alternate sample location will be selected. Alternate locations may be needed if, for example, a selected location is at a porthole, bulkhead opening, or otherwise not accessible.

3.6 The alternate sample location will be as close as feasible to the proposed sample location, at a distance equal or closer to the remediated area, but not further away.

3.7 A diagram of proposed sampling locations has been prepared for the sample strategies proposed in Items 3.3.1, 3.3.2, and 3.3.3 above.

3.7.1 Sample diagram based on a remediation area with a radius of less than 4-feet (see Figure 1).

3.7.2 Sample diagram based on a remediation area with a radius of more than 4-feet and less than 10-feet (see Figure 2).

3.7.3 Sample diagram based on a remediation area with a radius of more than 10-feet and less than 20-feet (see Figure 3).

3.8 Decontamination process for re-usable sampling equipment.

3.8.1 Re-usable sampling equipment will be cleaned and/or decontaminated to avoid cross-contamination between samples and/or sample locations.

3.8.2 The sampling equipment will be pre-cleaned before the site visit by rinsing with solvent and wiping the equipment down.

3.8.3 Equipment will also be cleaned with solvent between samples and then wiped with a single use, disposable towel.

4.0 Sample collection to ascertain the presence of PCB's in paint throughout the remainder of the vessel.

4.1 Sampling will be performed **based-in-part** on the statistical sampling strategies contained in the guidance document *Compliance with Toxic Substances Control Act (TSCA) PCB Disposal Regulations: Sampling and Analyzing Paint on Metal Surfaces of Vessels Being Scrapped for Metal Recovery*. The actual sample strategy presented below is more comprehensive than that presented in the preceding EPA publication. We understand the limitations associated with the preceding publication, and acknowledge that it is not relevant or applicable to this project in its entirety.

4.2 According to the vessel arrangement (BU SHIPS NO. ASR 13-S0103-671735), a total of 42 vessel compartments have been identified for sampling. The sum of these compartments, as well as exterior hull locations, comprise the scope of all rooms/compartments/areas that will be sampled. Additional compartments identified beyond the anticipated 42 will also be sampled according to the provisions of this plan. Specific sample locations are delineated in the following Sections 4.3 through 4.10.

4.3 Samples will be obtained from multiple exterior locations from each side of the ship hull.

4.4 Samples will be obtained from multiple locations on each level of the exterior of all decks above the main deck.

4.5 On every deck of the vessel, a sample will be collected from the overhead bulkhead, the deck itself, and the bulkhead of the corridor.

4.6 On every deck of the vessel, a sample will be collected from the overhead bulkhead, the deck itself, and the bulkhead of a living quarters compartment, office, or related area.

4.7 On every deck of the vessel, a sample will be collected from compartments used for the storage of ammunition, fuel, or other flammable materials. This may include machinery spaces, mechanical rooms, or engine spaces.

4.8 Individual samples will be taken from any bulkhead, overhead, or deck painted with colors or textures that are different than samples described above.

4.9 Individual samples will be obtained from limited use areas such as but not limited to storage lockers, utility spaces, and storeroom.

4.10 Individual samples will also be obtained from painted surfaces adjacent to mechanical systems such as the anchor windlass, towing winch, steering gear, and other rotating machinery. Additionally, samples will be obtained from command areas such as the bridge, radio room, radar/sonar room, chart room and other related space where electrical equipment was used. Such machinery could have utilized PCB-containing lubricating or hydraulic fluids in the past, which could have potentially leaked onto adjacent surfaces.

4.11 All samples will be collected using paint scrapers. Sample tools will be cleaned prior to collecting each sample.

4.12 Personnel collecting samples will use disposable rubber gloves, which will be changed between the collection of each sample.

4.13 Samples will be placed in either glass jars or manila envelopes. Each sample will be labeled with a unique sample number, along with the general sample location.

4.14 The sample size shall be an area measuring approximately 30 centimeters by 30 centimeters, and the depth of the sample will be from the painted surface to the bare metal substrate, with the goal of obtaining a 50 gram sample; less than 50 grams may be obtained if deemed appropriate by the laboratory.

4.15 All samples will be logged on a sampling form, and will include information such as vessel name, sample number, sample description/location, the sample date, and the name of person who collected the sample.

4.16 Each sample location will be marked with bright-colored spray paint and photo documented, with the photograph number corresponding to the uniquely assigned sample number.

5.0 Waste and trash handling procedures.

5.1 Waste generated from the sampling process, including but not limited to disposable gloves, towels, tools, discarded sample bags/containers, and other disposables will be placed into a bag designated for such purpose.

5.2 The materials will be retained until the sample results are available for review.

5.3 If all samples contain less than 50 ppm PCB, then the materials will be disposed of as trash.

5.4 If any samples contain greater than 50 ppm PCB, then the materials will be disposed of as contaminated waste.

6.0 Field QA/QC procedures, including blanks, duplicates, and splits.

6.1 Quality Control procedures will begin with the collection of the first sample.

6.2 Each sample will be logged on a sample form and shall include the sample number, sample location, date of collection, and the name of person collecting the sample (see Section 4.14).

6.3 A sample diagram, indicating the location and sample number, will be included.

6.4 The samples will be submitted to an accredited laboratory facility following chain-of-custody procedures. Chain of custody provides conclusive written proof that the samples were taken, transferred, prepared, and analyzed in an unbroken line as a means to maintain sample integrity.

6.5 Field blanks will be collected at a rate of 10% of the total number of paint samples taken, with a minimum of two blanks collected. The purpose of field blanks is to demonstrate that the sampling equipment has not been contaminated. If only two field blanks are taken, they will be taken before and after the field sampling has occurred. Additional blanks, if collected, will be obtained while the field sampling is in progress.

6.6 Duplicate samples will be collected from 10% of the sample locations, with a minimum of two duplicates collected.

6.7 No split samples are anticipated.

7.0 The approved analytical method(s) to be employed.

7.1 Analysis protocols will be selected from among those listed in the EPA SW-846 listings.

7.2 Based on the potential variety of Aroclor compounds present, we propose to use EPA Method SW-846 8082 with Soxhlet Extraction. Soxhlet extraction will be based on EPA's preferred method, which is SW-846 3540C, with extract cleanup performed based on SW-846 3600.

7.3 We propose to submit the samples to Clayton Group Services (Bureau Veritas) for analysis. This laboratory has prior documented experience performing PCB analysis with Soxhlet Extraction.

8.0 The criteria for classifying a sample result as a negative finding.

8.1 A result showing PCB content between Non-Detect and <50 ppm for ALL samples shall be considered a negative finding and indicative of an effective remediation, provided the limit of detection is < 50 ppm.

8.2 EPI will request that the analytical laboratory responsible for analyzing the bulk samples attain the lowest Limit of Detection feasible. Based on our previous experience, the LOD may be 25 ppm or less.

8.2 Any sample results showing a PCB content ≥50 ppm shall imply a positive finding, indicating the area has not been successfully remediated.

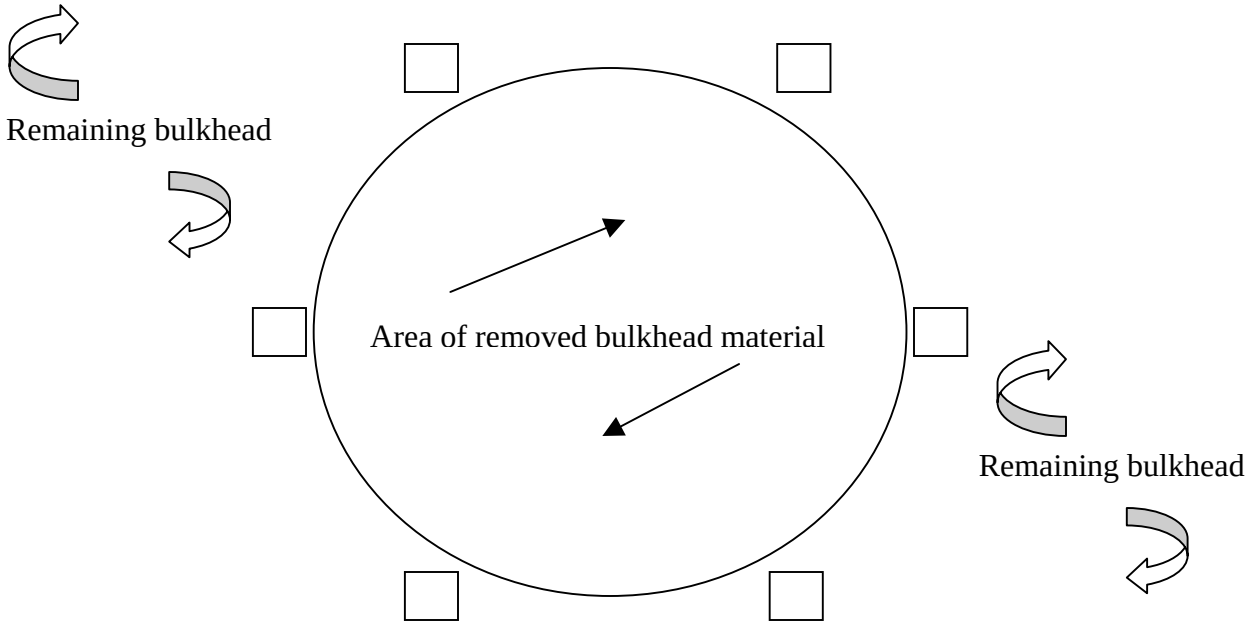

Figure 1. Location of sampling points in a 6-point grid where the outer boundary of the contaminated area is 4-feet or less from the center. The distance between adjacent sample points will be less than or equal to 0.87 times the radius of the contaminated area (0.87r).

= Sample location

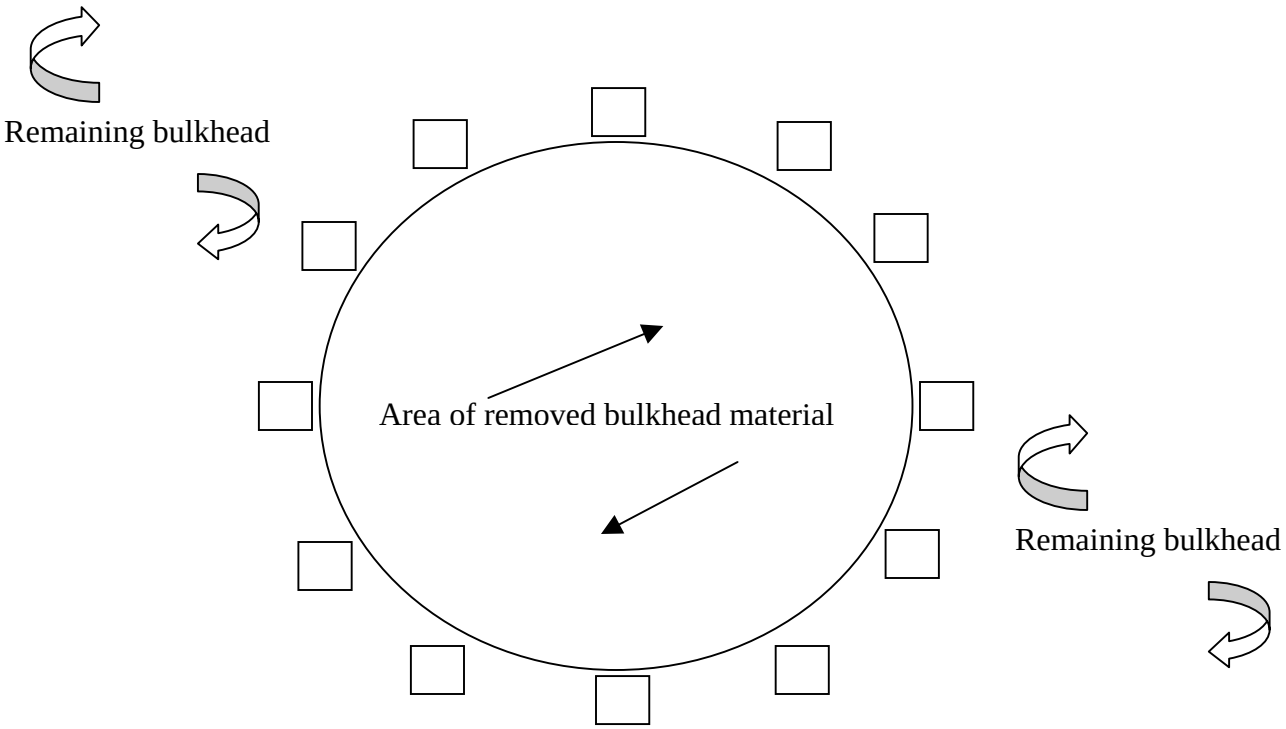

Figure 2. Location of sampling points in a 12-point grid where the outer boundary of the contaminated area is more than 4-feet but less than 10-feet from the center. The distance between adjacent sample points will be less than or equal to 0.48 times the radius of the contaminated area (0.48r).

= Sample location

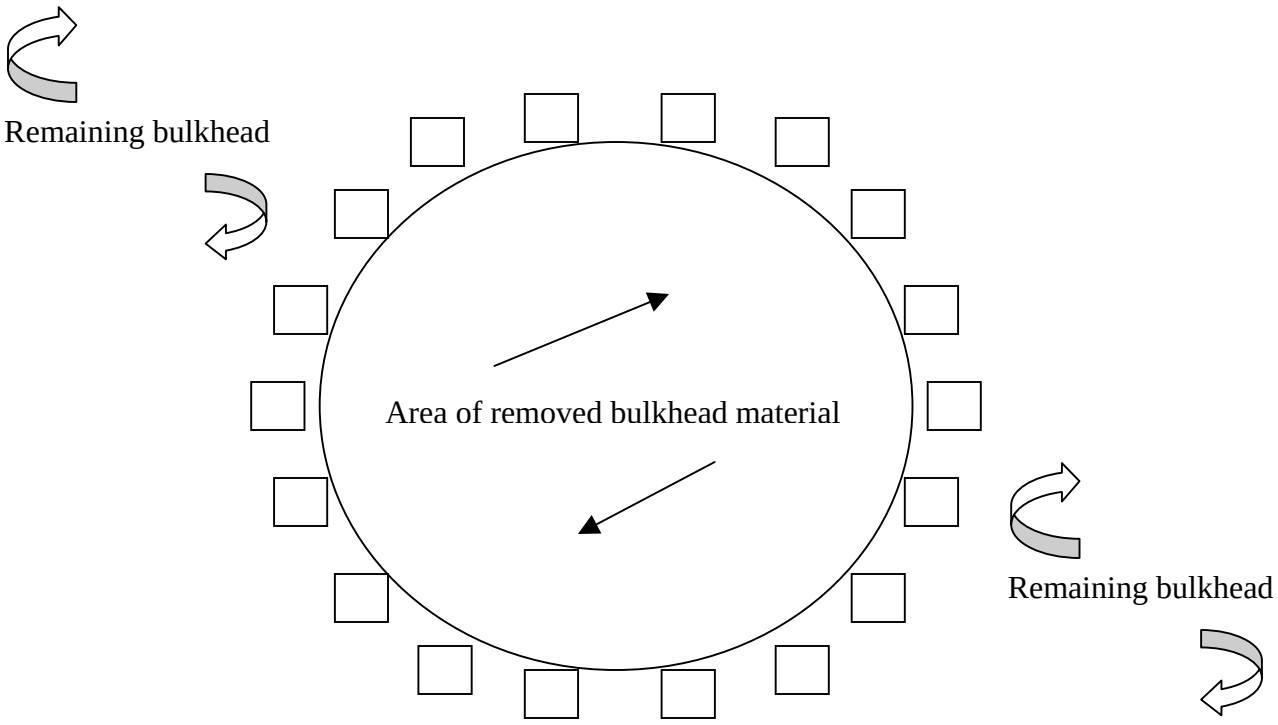

Figure 3. Location of sampling points in an 18-point grid where the outer boundary of the contaminated area is more than 10-feet but less than 20-feet from the center. The distance between adjacent sample points will be less than or equal to 0.30 times the radius of the contaminated area (0.30r).

= Sample location

APPENDIX 6c
EPI Key Resumes

CURRICULUM VITAE

MARC J. PLISKO, CIH

Date of Birth: 23 April 1965
Citizenship: USA

Education:

1983-1989 B.S. Commerce and Engineering Sciences
Drexel University
Philadelphia, Pennsylvania

Professional Experience:

1996-Present Industrial Hygienist/Project Manager
Environmental Profiles, Inc.
Baltimore, Maryland

Responsibilities: Provide technical consulting services to government agencies and commercial industries in the areas of safety, health and environmental protection. Specific activities include industrial hygiene exposure assessments, facility audits (OSHA, VPP, IH), risk evaluations, and research for expert witness testimony/litigation support. Additional duties include the preparation of health and safety plans, performance of environmental site assessments, and protocol development for site auditing.

1990-1996 Senior Project Manager
Custer Environmental, Inc.
Bethesda, Maryland

Responsibilities: Directed field activities of growing Industrial Hygiene/Consulting firm. Duties included development of fee proposals and sampling strategies, scheduling of all field work, tracking projects for technical and financial quality control, and interfacing with clients. Additional duties included interviewing and hiring of staff, providing technical support for field staff and marketing personnel, directing in-house laboratory activities, and maintaining field instrumentation. Daily activities also included the development of specifications for asbestos and lead abatement, asbestos assessments of both schools and commercial buildings, and Phase I/Phase II Environmental Site Assessments.

1989-1990 Field Inspector/Abatement Supervisor
Environmental Management Systems, Inc.
Washington, DC

Responsibilities: Provided air monitoring support and project management for asbestos abatement activities. Responsibilities included air sample collection and analysis, work area clearance, and report preparation. Participated in Phase I Environmental Site Assessments, and assisted in the preparation of asbestos abatement specifications.

1987-1988 Field Technician
Accredited Environmental Technologies, Inc.
Lima, Pennsylvania

Responsibilities: Performed air sampling for asbestos and sample analysis via Phase Contrast Microscopy. Also provided work area clearance and bulk sampling activities for asbestos abatement projects.

Current Certifications:

American Board of Industrial Hygiene: Certified Industrial Hygienist (CIH), Registration No. 8203 (2001)

AHERA and State of Maryland Certified Asbestos Inspector, Management Planner, and Project Designer. NIOSH 582 Course for Asbestos Air Sampling and Analysis.

Professional Memberships:

American Industrial Hygiene Association - Full Member
American Industrial Hygiene Association; Chesapeake Section
American Industrial Hygiene Association; Potomac Section

American Academy of Industrial Hygiene - Diplomate

National Capital Chapter - Environmental Information Association (Formerly the National Asbestos Council) Board Member – 1995 & 1996, Treasurer – 1997 & 1998, President - 1999

Society for Chemical Hazard Communication

Selected Project Experience:

AUDITS

- Performed in excess of fifteen site audits using OSHA's Voluntary Protection Program (VPP) protocols during 1996 and 1997. The audits were performed for Fortune 500 companies who had submitted application for VPP approval. Audits included document review, facility inspections and interviews.

- Conducted site audits for the DOE-VPP Program at the Idaho National Engineering and Environmental Laboratory (INEEL) in 1997 and 1998. Work included baseline audits (1997) and follow-up audits (1998) of each INEEL operating division.

- Performed a Chemical Hygiene Plan (CHP) audit for an international laboratory campus of eleven operating divisions operated by a Fortune 500 company.

PROGRAM DEVELOPMENT

- Developed safety and environmental programs and written plans for companies engaged the recycling and disposal of obsolete US Government ships.
- Developed and prepared Chemical Handling and Storage Program documents for the US EPA Facility Safety and Health Manual. Document included:
    - Chemical usage and handling
    - Proper storage
    - Facility design requirements
    - Employee training
    - Program evaluation

- Developed and prepared Indoor Air Quality (IAQ) audit guidelines used for developing and assessing IAQ management programs.

- Developed respiratory protection program for biotechnology research firm.

INDUSTRIAL HYGIENE/RISK ASSESSMENTS

- Worked with the US Navy, EPA, the Maritime Administration, and private investors for the purpose of sinking a 510’ ex-Navy vessel for use as an artificial marine habitat. Work includes hazardous material surveys (asbestos, PCB, metals, fuels and oils) and the development of decontamination procedures.

- Participated as Design/Build team member for new Visiting Officer’s Quarters at Dover AFB, Delaware. Performed inspections for hazardous materials at project site and prepared plans and specifications for removal of same. Performed similar work for various US Navy design/build contracts.

- Completed more than ten projects as a team member with Beck, Powell & Parsons for the National Institutes of Health in Bethesda, Maryland. Projects included Laboratory Renovations, Building 10, Rooms 5N313 - 5N320; Laboratory Modification, Building 10, 12N242; Radiology Laboratory Renovation, Building 10, Rooms 2N23 through 2N39; and upgrading of Patient Care Unit 10 West, Building 10.

- Performed building feasibility study for Bachelors Enlisted Quarters, Andrews AFB as part of an indefinite-delivery contract for Architectural Design and Engineering Services for the U.S. Department of the Navy, CHESNAVFACENGCOM, Washington, DC.

- Provided field investigations and construction phase services in conjunction with the U.S. Department of Veterans Affairs, Washington, DC including renovations for VA Patient Wards, Clarksburg, WV and renovations for Patient Privacy Rooms, Wilmington, DE.

- Managed and performed renovation design projects at Aberdeen Proving Ground: Buildings 525, E3330, E5232, Starke Center, and Reveille Gym as part of an indefinite -delivery contract for U.S. Army Corps of Engineers, Baltimore District.

- Conducted Indoor-Air-Quality investigations including HVAC system studies prior to renovations for AT&T at three (3) facilities in Washington DC, Maryland and Virginia.

- Provided Design Phase services for renovations impacting on hazardous materials for Bell Atlantic.

- Monitored asbestos abatement projects for regulatory compliance at Ft. Belvoir, Naval Facilities Command, Naval Research Lab, Ft. Holabird, Ft. Myer, Public Health Service, and numerous public and private schools.

RESEARCH/TOXICOLOGY

- Performed exposure assessment of asbestos fiber release from the brake pads of overhead industrial cranes. Paper published in *Applied Occupational and Environmental Hygiene (ACGIH)*.

- Assisted in design of not less than fifteen product studies to evaluate asbestos fiber release from asbestos gasket and packing materials.

- Assisted in the development of strategic approaches for product litigation support involving Fortune 500 companies.

- Performed research and assisted in case preparation for legal cases involving chemical exposure and toxic tort issues.

Professional Publications:

Spencer, John and Plisko, Marc J., "A Comparison Study Using a Mathematical Model and Actual Exposure Monitoring for Estimating Solvent Exposures During the Disassembly of Metal Parts," Journal of Occupational and Environmental Hygiene, (4) 2, April 2007.

Nicas, Mark, Plisko, Marc J., Spencer, John W., "Estimating Benzene Exposure at a Solvent Parts Washer," Journal of Occupational and Environmental Hygiene, (3) 5, May 2006.

Spencer, Plisko and Balzer "Asbestos Fiber Release from the Brake Pads of Overhead Industrial Cranes" Applied Occupational & Environmental Hygiene, Volume 14: 397-402, 1999

Presentations:

- "The Implications of Input Variable Selection When Modeling Occupational Exposures." American Industrial Hygiene Conference and Exposition, June 2007.
- "A Validation Study of a Mathematical Model for Estimating Solvent Exposures in the Workplace." American Industrial Hygiene Conference and Exposition, June 2007.
- Roundtable Presentation, "A Retrospective Evaluation of Occupational Exposure to Benzene Using Mathematical Modeling and Work-Practice Simulation," presented at AIHCE 2005 in Anaheim, CA.
- Poster Presentation, "Using a Physical-Chemical Mathematical Exposure Model for Determination of Occupational Exposure," presented at AIHCE 2004 in Atlanta, GA.
- Poster Presentation, "Preparation of Decommissioned Navy Ships for Use as Artificial Marine Habitats," presented at AIHCE 2003 in Dallas, TX.
- "Creation of an Artificial Marine Habitat; Preparation for Sinking the ex-USS Spiegel Grove" AIHA Chesapeake Section, October 2002 and AIHA New England Section November 2003.
- Platform Presentation, "The Actual Contribution of Asbestos Fibers to the Work Environment from the Removal and Installation of Asbestos-Containing Valve Packing," presented at AIHCE 2002 in San Diego, CA.
- Platform Presentation, "Managing Exposure Data Using an Industrial Hygiene Data Management Program," presented at AIHCE 2000 in Orlando, FL.
- Poster Session, "Management for Continuous Improvement of Health, Safety, and Environmental Programs," presented at AIHCE 1999 in Toronto, Ont., Canada.

CURRICULUM VITAE

JOHN W. SPENCER, CIH, CSP

Date of Birth: 12 February 1954
Citizenship: USA

Education:

1980-1981	National Institute for Occupational Safety and Health and OSHA Training Institutes – Special Programs
1973-1976	B.S. Biological Sciences University of Maryland College Park, Maryland
1972-1973	St. Mary's College St. Mary's City, Maryland

Professional Experience:

1993 - Present	President Environmental Profiles, Inc. Baltimore, Maryland
June 1990 - 1993	Vice President and Director of Environmental Sciences National Medical Advisory Service Bethesda, Maryland
1988-1990	Principal Daft-McCune-Walker, Inc. Towson, Maryland President DMW Environmental Services, Inc. a subsidiary of Daft-McCune-Walker
1987-1988	Corporate Industrial Hygienist and Environmental Coordinator United States Fidelity and Guarantee Company Baltimore, Maryland
1982-1987	Director of Industrial Hygiene and Occupational Health Programs United States Coast Guard, 5th District Portsmouth, Virginia

Professional Experience (cont.):

1980-1982	Team Leader/Industrial Hygienist National Institute for Occupational Safety and Health National Occupational Hazard Survey Cincinnati, Ohio
1977-1980	Industrial Hygienist Equitable Environmental Health Rockville, Maryland

Certifications and Registrations:

1987	American Board of Industrial Hygiene Certified Industrial Hygienist
1991	Board of Certified Safety Professionals Certified Safety Professional
2003	Certified Indoor Air Quality Consultant

Professional Societies:

	American Indoor Air Quality Council
	American Industrial Hygiene Association
	American Board of Industrial Hygiene
	American Conference of Governmental Industrial Hygienists
	Board of Certified Safety Professionals
	American Association for the Advancement of Science
	Society for Chemical Hazard Communication
1999	Member, American Society of Safety Engineers
1998	Member, American Association for the Advancement of Science
1996	Member, New York Academy of Sciences
1993-94	Member, Maryland Industrial Hygiene Council
1992-93	President, American Industrial Hygiene Association, Chesapeake Section
1992	President-Elect, American Industrial Hygiene Association, Chesapeake Section

Committees:

American Industrial Hygiene Association:
Product Health and Safety Committee (1991-1995)
- MSDS and Labeling and other Warning Issues
Emergency Response Planning Committee (1991-1999)

Awards:

1987	USF&G Company Excellence Through Service Award
1976	National Institutes of Health Outstanding Achievement Award

Selected Project Management Experience:

2001	Director of health, safety, and environmental management for a ship recycling firm. Managed the proper removal of asbestos, PCB, mercury, lead, petroleum products, and other regulated substances.
1997	Planned and conducted facility audits for health and safety regulatory requirements and Voluntary Protection Programs elements. Completed eleven (11) facilities in a three-week period using in-house developed software auditing and tracking tools.
1994-1996	Developed and implemented exposure assessment strategies of film processing operations. The operations included mass color film processing, and color film processing during the operation of a minilab. Investigations have also included the review of potential chemical exposures resulting from the use of X-ray development equipment in private doctors' offices and hospital environments.
1994	Conducted oversight of the environmental clean up of a U.S. naval aircraft carrier during a shipbreaking process. Evaluated for contaminated waters, painted surfaces, PCB, and asbestos containing materials. Insured the proper removal and disposal of all waste materials.
	Developed product warning labels and material safety data sheets for industrial and consumer products.
	Managed the final clearance of asbestos from approximately 25 occupied apartment buildings. Oversaw clean-up strategy, including air monitoring of work and adjacent spaces.

Selected Project Management Experience (cont.):

1994	Have conducted numerous indoor air quality investigations of commercial office space, clinical laboratories, and on University campuses. Assessments included review of the heating ventilating and air condition system, management programs to respond to IAQ complaints and real time monitoring for chemical, physical, and biological agents.
1994	Conducted audits of health, safety, environmental and management programs of multiple chemical processing facilities.
1991, 1992, 1993	Designed and implemented several comprehensive product risk analysis evaluations for product manufacturers. Analysis included hazard identification, toxicological assessments, industrial hygiene exposure assessment, and risk characterization. Recommendations to control or eliminate potential user exposures were provided.
1991, 1992, 1993	Supplemental information for product warnings by the MSDS, labels, and technical information bulletins was also included.
1990, 1991, 1993	Provided expert opinion on sufficiency of labels and warnings for chlorinated solvents, isocyanate, and benzene containing products.
1989	Evaluated a 450-acre manufacturing facility with nearly 3 million square feet of manufacturing and warehouse space for hazardous substances which may have represented liability to the potential purchaser under CERCLA. Reported directly to the Rouse Company in Columbia, Maryland as their environmental advisor for the approximate $43 million property transfer.
1988-1990	Have conducted numerous exposure assessments to evaluate actual personal exposure levels that resulted from various workplace tasks and environments. Benzene, asbestos, formaldehyde, chlorinated solvents, and automobile by-products of combustion were evaluated via real-time assessments to assess actual personal exposures.
1988-1989	Developed a groundwater monitoring and protection program for a new golf course facility. Determined environmental base line parameters to be applied to subsequent future groundwater sampling. Assessed pesticide environmental fate mechanisms and degradates resultant from turf management practices.

Selected Project Management Experience (cont.):

1988-1989	Evaluated hazardous material haulers exposure to cargo during pick-up, transit, and off-loading. Established recommendations for personal protective equipment and work practices to reduce and eliminate significant exposures to cargo. Chemicals evaluated included the isocyanates, MDI and TDI and methylene chloride.
1986	Conducted a detailed health hazard evaluation of an EPA Superfund (CERCLA) site in New Jersey. Monitored hazardous waste site workers' exposure to a multitude of chemical contaminants.
1985-1987	Development and implementation of Occupational Medical Monitoring, Hearing Conservation, Lead, Asbestos and Hazard Communication programs for approximately 4,000 military and civilian personnel involved in manufacturing, office and residential environments. Measured exposures to benzene, aliphatic hydrocarbons, and other chemical and physical agents in industrial and shipboard environments.
1985	Conducted Asbestos and Lead Training Programs for shipyard workers involved in abatement procedures. Instructed workers in the areas of potential health hazards, health and safety measures and methods for reducing their exposure. Prepared labels for in-house product use.
1980-1982	Led a team of seven industrial hygienists in the NIOSH National Occupational Hazard Survey. My team visited approximately 1,500 facilities across the United States. We reviewed management practices related to employee safety and health, conducted wall-to-wall audits of the facility, reviewed product labels and MSDS, inventoried products and their constituents from readily available information and developed a product database.
1979	Conducted a wall-to-wall survey of a pharmaceutical facility evaluating worker exposures and recommended methods for regulatory compliance.

Professional Development Courses:

Introduction to Monte Carlo Uncertainty Analysis, PDC 8, 26 September 1999, PCIH ‘99

Risk Assessment, PDC 6, 26 September 1999, PCIH ’99

Mathematical Models for Occupational Exposure Assessment, PDC 402, 6 June 1999, AIHCE

International Hazard Communication, AIHA/SCHC (12 hrs)

Professional Development Courses (cont.):

Environmental Toxicology, Hood College (24 hrs)

Man-Made Mineral Fibers: Status of Health Risk Assessment, Johns Hopkins University (12.5 hrs)

Health Hazard Recognition & Evaluation, OSHA Institute (80 hrs)

Health Hazard Recognition & Evaluation, NIOSH Training Institute (80 hrs)

Chemical Process Industries, University of Cincinnati (40 hrs)

Industrial Ventilation Conference, North Carolina State University (40 hrs)

Mechanisms of Toxicology, Johns Hopkins University (25 hrs)

Asbestos Symposium, Johns Hopkins University (8 hrs)

Loss Control Management, U. S. Coast Guard (40 hrs)

Pulmonary Medicine Topics, U.S. Navy Conference (8 hrs)

Navy Occupational & Environmental Health Workshop, U.S. Navy Conference (40 hrs)

Comprehensive Review of Industrial Hygiene, University of Utah (40 hrs)

Air Surveillance for Hazardous Materials, U.S. EPA (40 hrs)

Appropriate IH Data Collection for Future Occupational Epidemiology Studies (4 hrs)

Certified Indoor Air Quality Consultant Study/Review Course (20 hrs)

Selected Speaking Engagements:

2007 "A Validation Study of a Mathematical Model for Estimating Solvent Exposures in the Workplace." American Industrial Hygiene Conference and Exposition, June 2007.

"The Implications of Input Variables Selection When Modeling Occupational Exposures." American Industrial Hygiene Conference and Exposition, June 2007.

2003 "Estimating Past Exposures- The Scientific Basis for Reconstructing Asbestos Dose for Groups and Individuals." American Industrial Hygiene Conference, May 2003

Selected Speaking Engagements (cont.):

2002	"Where do we start? The proper response to an indoor air quality complaint. Investigation and testing techniques; determining causes; remediation," 18th Annual Maryland Workers' Compensation Educational Association Inc. Conference, 24 September 2002.
2001	"Generating Exposure Data on Historical Activities or Products", American Industrial Hygiene Conference, 4 June 2001.
	"Evaluation of Chemical Exposures in Mammography X-Ray Development," American Industrial Hygiene Conference, 4 June 2001.
	"Comparison of Direct and Indirect Sample Preparation Methods for Asbestos Analysis", American Industrial Hygiene Conference, 6 June 2001.
1999	"The Actual Contribution of Airborne Asbestos Fibers to the Work Environment From Asbestos Gaskets", American Industrial Hygiene Conference and Exposition, 7 June 1999.
1998	Federal Safety and Health Council of Central Maryland Health & Safety Programs: Auditing, Self-Assessments and Issues Tracking
1995	"Environmental Health & Safety Auditing — Performance Measures," Program Chairperson, Johns Hopkins University, Baltimore, Maryland, October 1995
	"Health & Safety Audits Course", Program Chairperson, Government Institute, Orlando, Florida, February 1995
	"Issues Critical to Growth", Maryland Chamber of Commerce, Baltimore Leadership Training, Baltimore, MD, 15 May 1995
1994	"Health and Safety Compliance Auditing Course", 3 days UNOCAL Corporation, Los Angeles, CA, August & September, 1994
	"Indoor Air Quality; Putting the Issues into Perspective", American Industrial Hygiene Association, Chesapeake Section, Professional Development Conference. U.S. Naval Academy, Annapolis, MD, October 1994
1994	"Computer Applications for Managing Health, Safety and Environmental Programs" Safety Council of Maryland, June 1994
	"Emergency Response Planning" Round table American Industrial Hygiene Conference, May 1994.

Selected Speaking Engagements (cont.):

1994	The OSHA Update Conference, Government Institutes, Inc., Washington, DC, 29-30 October 1992 — Health & Safety Audits
1992	The Environmental Management Development Summer Institute, Government Institutes, Washington, DC, 12 June 1992 — Hazard Communication Requirements — Preparing for Inspections and Working with the Regulators
	Chairperson for "Product Risk Assessment" Roundtable, AIHA National Meeting
	Program Chairperson for "Health and Safety Auditing," Government Institute Programs
1989	Maryland Institute for Continuing Professional Education of Lawyers Advanced Real Estate Institute Environmental Issues in Land Development
1988	DMW/Cook, Howard, Downes and Tracy; Land Use Seminar Property Investigations for Hazardous Substances for Real Estate Transactions
1987	USF&G Loss Control Seminar Environmental Hazard Assessment
1986	U.S. Coast Guard Marine Safety Training School Environmental and Occupational Hazard Assessment

Professional Conference Poster Presentations:

1. Plisko, M.J. and Spencer, J.W. 1999. *Measurement for Continuous Improvement of Health, Safety, and Environmental Programs*. American Industrial Hygiene Conference and Exposition, Toronto, Canada. June.
2. Spencer, J.W. 2000. *An Example of a Quantitative/Environmental Exposure Database-An Information Resource*. American Industrial Hygiene Conference and Exposition, Orlando, Florida. May.
3. Burrelli, L., Nealley, M., Plisko, M., Spencer, J. 2004. *Exposure Assessment: An Evaluation of Benzene from the Application and Use of Spiked Penetrating Solvents*. American Industrial Hygiene Conference and Exposition, Atlanta, Georgia. May.
4. Plisko, M. and Spencer, J. 2004. *Using a Physical-Chemical Mathematical Exposure Model for estimating Occupational Exposure*. American Industrial Hygiene Conference and Exposition, Atlanta, Georgia. May.

Professional Publications:

1. Torrence, P.R., and Spencer, J.W. 1978. "5- 0- Alkylated Derivatives of 5-Hydrox-2[1]-deoxyuridine as Potential Antiviral Agents." *Journal of Medicinal Chemistry*. 21:228.
2. Gots, R.E., Gots, B.A., and Spencer, J. 1992. "Proving Causes of Illness in Environmental Toxicology: 'Sick Buildings' as an Example." *Fresenius Envir Bull*. 1:135.
3. Spencer, J.W. 1992. *Health and Safety Audits*. Government Institutes, Inc.
4. Rose, V.E. and Spencer, J.W. 1995. *Hazard Communication: An AIHA Protocol Guide*. AIHA Publication.
5. Spencer, J.W., Plisko, M., Balzer, R. 1999. "Asbestos Fiber Release from the Brake Pads of Overhead Industrial Cranes" *Occupational & Environmental Hygiene*. 14:397-402.
6. Nicas, M., Plisko, M.J., Spencer, J.W. 2006. "Estimating Benzene Exposure at a Solvent Parts Washer." *Journal of Occupational and Environmental Hygiene*. 3:284-291.
7. Spencer, J.W. and Plisko, M.J. 2007. "A Comparison Study Using a Mathematical Model and Actual Exposure Monitoring for Estimating Solvent Exposures During the Disassembly of Metal Parts." *Journal of Occupational and Environmental Hygiene.* 4:253-259.
8. Boelter, F.W., Spencer, J.W., Simmons, C.E. 2007. "Heavy Equipment Maintenance Exposure Assessment: Using a Time-Activity Model to Estimate Surrogate Values for Replacement of Missing Data." *Journal of Occupational and Environmental Hygiene.* 4:525-537.